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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/534,299

05/09/2005

Michel Strebelle

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08/02/2006

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EXAMINER

KEYS, ROSALYND ANN

ART UNIT

PAPER NUMBER

1621

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/534,299

Applicant(s)

STREBELLE ET AL.

Examiner

Rosalynd Keys

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/9/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Status of Claims

1. Claims 1-10 are pending.

Claims 1-10 are rejected.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on May 9, 2005 has been considered by the examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbeau (US 6,063,941) in view of De Jong et al. (WO 96/03362).

Gilbeau discloses a process for the epoxidation of allyl chloride to epichlorohydrin (1,2-epoxy-3-chloropropane) with hydrogen peroxide in the presence of solvent, such as methanol and a TS-1 catalyst (see entire disclosure, in particular column 3, line 44 to column 4, line 47). It is taught that the pH should be maintained at a value of at least 2, in particular of at least 4, and usually should not exceed 8, preferably 7, because alkaline pH values can affect the activity of the catalyst (see column 3, lines 36-43). In example 1 a reactor equipped with a recirculation loop is utilized. The catalyst is present in the form of a fluid bed (see example 1).

Gibeau differs from the instant invention in that Gibeau does not disclose the 1,5-hexadiene content of his allyl chloride.

De Jong et al. teach that it is desirable to remove hexadienes, in particular 1,5-hexadiene from allyl chloride, which is to be used to make epichlorohydrin because the hexadienes are a source for chlorinated by-products (see entire disclosure, in particular page 1, line 15 to page 3, line 3. It is desirable that the production of these undesirable by-products be reduced since they are toxic (see page 1, lines 23-29).

One having ordinary skill in the art at the time the invention was made would have found it obvious to utilize an allyl chloride with as low as possible 1,5-hexadiene content in the process of Gibeau, since De Jong et al. teach hexadienes are a source for the undesirable chlorinated by-products that form when the hexadienes react with water and chlorine. The skilled artisan would have been further motivated to utilize an allyl chloride with as low as possible 1,5-hexadiene content in the process of Gibeau, since the process for producing epichlorohydrin would also contain water and chlorine which could react with the 1,5-hexadiene, as taught by De Jong. Thus, the elimination or reduction of the 1,5-hexadiene in the allyl chloride of Gibeau would eliminate or reduce the formation chlorinated by-products in the product epichlorohydrin thus resulting in a less toxic waste water and reduced cost (see column 1, lines 15-29).

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1-10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11-20 of copending Application No.

10/534,502 (US 2006/0041150 A1) in view of Gilbeau (US 6,063,941). Instant claims 1-10 and

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claims 11-20 of 10/534,502 are both directed to the manufacture of 1,2-epoxy-3-chloropropane by reaction between allyl chloride and hydrogen peroxide in the presence of a catalyst, in particular TS-1; use of a solvent, in particular methanol; the allyl chloride having a 1,5-hexadiene content of less than 2000 ppm; a reaction temperature of between 45 to 80°C; a molar ratio of allyl chloride to hydrogen peroxide of from 2 to 7; the catalyst being present in a fluid bed; and the use of a reactor of loop type comprising recirculation of the epoxidation medium. The difference is that in 10/534,502 the pH is required to be greater than or equal to 1.5 and less than 4.8, whereas the instant claims either do not have a pH limitation (claims 1-4 and 6-10) or they are limited to a pH of from 3 to 4.5 (claim 5). Gilbeau discloses a process for the regeneration of a catalyst, particularly a catalyst used in the reaction for the epoxidation of allyl chloride to epichlorohydrin (1,2-epoxy-3-chloropropane). See entire disclosure, in particular column 3, lines 44-53. It is taught that the effluent arising from the preparation of the epoxide can already contain the oxidizing agent and thus it can be recycled and reused to regenerate the catalyst (see column 3, lines 57-65). It is taught that the pH should be maintained at a value of at least 2, in particular of at least 4, and usually should not exceed 8, preferably 7, because alkaline pH values can affect the activity of the catalyst (see column 3, lines 36-43). One having ordinary skill in the art at the time the invention was made would have found it obvious to utilize any pH between the value of 2 and 8, as taught by Gilbeau, in the process of copending Application No. 10/534,502, since Gilbeau teaches that this is a suitable pH and that the use of alkaline pH can affect the activity of the catalyst. Further it would be routine experimentation for one having ordinary skill to modify the pH in order to determine the optimum range.

This is a provisional obviousness-type double patenting rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Strebel et al. (US 6,288,248 B1) teach a process for the manufacture of epichlorohydrin by reaction of allyl chloride with hydrogen peroxide in the presence of a TS-1 catalyst and a solvent such as methanol (see entire disclosure, in particular column 1, line 5 to column 3, line 33).

Balthasart teaches a process for producing an oxirane by reaction of an olefin with a peroxide compound on the presence of a catalyst and a solvent (see entire disclosure, in particular column 1, lines 5-28 and column 3, line 53 to column 5, line 48).

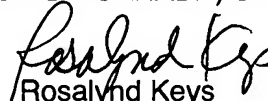
Takehisa teaches the desirability of producing an epichlorohydrin from an allyl chloride having a 1,5-hexadiene content of $< \text{ or } = 0.1\text{wt}\%$ (see English abstract, provided by Applicants).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosalynd Keys whose telephone number is 571-272-0639. The examiner can normally be reached on M-W & F 5:30-8:30 am & 1-5 pm; TH 5:30 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Rosalynd Keys
Primary Examiner
Art Unit 1621

July 28, 2006